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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/621,489
Filing Date: July 18, 2003
Appellant(s): COBENE, ROBERT LOUIS

Patrick Keane
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 24, 2008 appealing from the Office action mailed June 18, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,246,325	MORISHIGE et al.	9-1993
6,385,044	COLBERT et al.	5-2002
6,024,525	YAMANAKA	2-2000
5,871,323	CLARK	2-1999
2001/0019691	BOSS	9-2001

2002/0167795	CAPRIZ et al.	11-2002
2002/00664437	KURAMOTO et al.	5-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishige et al. (U.S. Patent 5,246,325) in view of Boss (U.S. Pre-Grant Publication 2001/0019691) and Capriz et al. (U.S. Patent Application Publication 2002/0167795) or Colbert et al. (U.S. Patent 6,385,044).

Morishige discloses a method of bonding an assembly of plural sheets to form a book-like structure comprising contacting a translatable first contacting surface (107 of Figure 12) to a backed hot melt adhesive sheet (110 and 112 of Figure 12) located on a spine surface of the assembly of plural sheets (111 of Figure 12), the spine surface being perpendicular to a planar surface of the assembly of plural sheets, applying force with at least a translatable second contacting surface (opposite to 107 of Figure 12) mounted for movement with the first contacting surface to the planar surface in an area where the backed hot melt adhesive sheet contacts the planar surface, and actively withdrawing heat from the backed hot melt adhesive sheet wherein at least the translatable first contacting surface has an angled leading edge adapted to contact a protruding end portion of the backed hot melt adhesive sheet at an offset angle (Figure 12 and Column 5, lines 64-68 and Column 6, lines 1-52).

Regarding the limitation of actively withdrawing heat from the backed hot melt adhesive sheet to bring a temperature of a hot melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition

temperature of the adhesive, Morishige teaches the hot melt adhesive of the backed hot melt adhesive sheet is heated and melted considered heated to a temperature above the glass transition temperature of the hot melt adhesive and then actively cooled to solidify the hot melt adhesive considered actively withdrawing heat from the backed hot melt adhesive sheet to bring a temperature of a hot melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the adhesive. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that heating to melt the hot melt adhesive and actively cooling to solidify the hot melt adhesive as taught by Morishige would have included actively withdrawing heat from the backed hot melt adhesive sheet to bring a temperature of the hot melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the adhesive otherwise the melted hot melt adhesive would not be solidified after active cooling.

Regarding the limitation of actively withdrawing heat using a heat sink based on an active cooling device, which is one of a Peltier device, a device having an internal circulating medium, and a device based on a Joule-Thomson effect, Morishige teaches the hot melt adhesive is cooled via an unshown cooling means it being noted providing a heat sink for dissipating heat from a heated surface is well known including during bookbinding as shown by Boss wherein it is further well known in providing a heat sink that a heat sink having an internal circulating medium for cooling is more efficient than a heat sink that is air cooled by natural or forced convection as shown by Capriz (Paragraphs 004 and 0005) or Colbert (Column 5, lines 10-19). More specifically, Boss discloses a method of binding a plurality of sheets to form a book-like

structure comprising providing an assembly of plural sheets (14 of Figure 2) including an adhesive portion along the spine and planar surface of the assembly (12 of Figure 2), providing a clamping jaw (22 of Figure 2) comprising an actively cooled heat sink (30 of Figure 2) attached to, i.e. connected to, and in thermal communication with a contacting surface (28 of Figure 2), displacing the clamping jaw at a distance greater than the thickness of the assembly of plural sheets, translating the clamping jaw to apply pressure to the planar surface of the assembly of plural sheets, applying heat to the clamping body to melt the adhesive, and then withdrawing heat from the assembly of plural sheets and the clamping body through the actively cooled heat sink to form the book-like structure (Figure 2 and Paragraph 17). Boss teaches including the actively cooled heat sink within the clamping jaw allows rapid heating and cooling of the assembly of plural sheets and clamping body (Paragraph 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the cooling means taught by Morishige a heat sink within the clamping jaw (i.e. attached to and in thermal communication with the first and second contacting surfaces) as providing a heat sink for dissipating heat from a heated surface is well known including during bookbinding as shown by Boss which allows rapid heating and cooling of the assembly wherein it would have been further obvious to use as the particular heat sink one having an internal circulating medium for cooling as is more efficient than a heat sink that is air cooled by natural or forced convection as shown by Capriz or Colbert.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishige, Boss, and Capriz or Colbert as applied above, and further in view of Kuramoto et al. (U.S. Pre-Grant Publication 2002/0064437).

Morishige, Boss, and Capriz or Colbert as applied above teach all of the limitations in claims 32 and 33 except for a specific teaching of attaching the backed hot melt adhesive sheet to the spine surface of the assembly of plural sheets by softening discrete points of the sheet by heating to a temperature above the glass transition temperature of the hot melt adhesive. Kuramoto discloses a method of binding a plurality of sheets to form a book-like structure comprising providing an assembly of plural sheets, contacting a hot melt adhesive sheet to a spine surface of the assembly of plural sheets, melting the hot melt adhesive sheet at discrete points to soften the sheet which is considered to include raising a temperature of the hot melt adhesive above a glass transition temperature of the adhesive, and tack the hot melt adhesive sheet to the spine to prevent displacement of the hot melt adhesive sheet during subsequent processing steps, and then bonding the hot melt adhesive sheet to the spine using a clamping apparatus including an active cooling means to form the book-like structure (Paragraphs 47, 49, and 50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Morishige as modified by Boss and Capriz or Colbert a step of tacking the backed hot melt adhesive sheet in discrete points to the spine of the assembly of plural sheets to prevent the backed hot melt adhesive sheet from displacing during clamping with the first and second bonding surfaces as shown by Kuramoto.

Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka (U.S. Patent 6,024,525) in view of Boss, Clark (U.S. Patent 5,871,323), and Capriz or Colbert.

Yamanaka discloses a method of bonding an assembly of plural sheets to form a book-like structure comprising contacting a translatable first contacting surface (702 of Figure 2B) to a backed hot melt adhesive sheet (T, B1, and B2 of Figure 1) located on a spine surface of the assembly of plural sheets (307 of Figure 2B) to fold the protruding end portion of the backed hot melt adhesive sheet around the spine surface, the spine surface being perpendicular to a planar surface of the assembly of plural sheets, and applying force with at least a translatable second contacting surface (703 of Figure 2B) mounted for movement with the first contacting surface to the planar surface in an area where the backed hot melt adhesive sheet contacts the planar surface (Column 4, lines 51-67 and Column 5, lines 41-53). Yamanaka is silent as to including within the clamping jaw (e.g. between the first contacting surface 702 of Figure 1 and press 730 of Figure 1) an active cooling member. Boss discloses a method of binding a plurality of sheets to form a book-like structure comprising providing an assembly of plural sheets (14 of Figure 2) including an adhesive portion along the spine and planar surface of the assembly (12 of Figure 2), providing a clamping jaw (22 of Figure 2) comprising a press (26 of Figure 2), an actively cooled heat sink (30 of Figure 2) attached to, i.e. connected to, and in thermal communication with a contacting surface (28 of Figure 2), displacing the clamping jaw at a distance greater than the thickness of the assembly of plural sheets, translating the clamping jaw to apply pressure to the planar surface of the assembly of plural sheets, applying heat to the clamping body to melt the adhesive, and then withdrawing heat from the assembly of plural sheets and the clamping body through the actively cooled heat sink to form the book-like structure. Boss teaches

including the actively cooled heat sink within the clamping jaw allows rapid heating and cooling of the assembly of plural sheets and clamping body. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include within the clamping jaw (e.g. between the first and second contacting surfaces and press and also attached to an in thermal communication with the first and second contacting surfaces) taught by Yamanaka an active cooling member such as an actively cooled heat sink as shown by Boss to allow rapid heating and cooling of the assembly, and thus, decrease the time required for binding.

Regarding the limitation of removing heat from the hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the hot melt adhesive, it is noted the hot melt adhesive of the backed hot melt adhesive sheet taught by Yamanaka is heated to above its melt temperature considered above its glass transition temperature and then cooled as shown by Boss to form the book-like structure that is dimensionally stable, i.e. the adhesive is hardened which is considered actively cooled to a temperature below the glass transition temperature of the hot melt adhesive. In the event it is shown the limitation is not necessarily met the following rejection would also apply. It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform Yamanaka as modified by Boss to actively cool the melted adhesive to its hardened temperature considered a temperature below the glass transition temperature of the adhesive from its melt temperature considered a temperature above the glass transition temperature of the adhesive to rapidly form a dimensionally stable book-like structure.

Regarding the limitation that at least the translatable first contacting surface has an angled leading edge adapted to contact a protruding end portion of the backed hot melt adhesive

sheet. It was known in bookbinding apparatus of the type taught by Yamanaka including first and second translatable contacting surfaces (28a and 28b of Figure 1) that the contacting surfaces include an angled leading edge for assisting in folding the protruding end portion of an adhesive backed cover sheet (26 of Figure 1) around the spine surface by contacting the protruding end portion at an offset angle as shown by Clark (Column 6, lines 17-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include on the first and second contacting surfaces taught by Yamanaka an angled leading edge for assisting in folding the protruding end portion of the backed hot melt adhesive sheet around the spine surface by contacting the protruding end portion at an offset angle as shown by Clark.

Regarding the limitation of actively withdrawing heat using a heat sink based on an active cooling device, which is one of a Peltier device, a device having an internal circulating medium, and a device based on a Joule-Thomson effect, it is well known in providing a heat sink that a heat sink having an internal circulating medium for cooling is more efficient than a heat sink that is air cooled by natural or forced convection as shown by Capriz (Paragraphs 004 and 0005) or Colbert (Column 5, lines 10-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the particular heat sink in Yamanaka as modified by Boss one having an internal circulating medium for cooling as is more efficient than a heat sink that is air cooled by natural or forced convection as shown by Capriz or Colbert.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka, Boss, Clark, and Capriz or Colbert as applied above, and further in view of Kuramoto.

Yamanaka, Boss, Clark, and Capriz or Colbert as applied above teach all of the limitations in claims 32 and 33 except for a teaching of attaching the backed hot melt adhesive sheet to the spine surface of the assembly of plural sheets by softening discrete points of the sheet by heating to a temperature above the glass transition temperature of the hot melt adhesive. Kuramoto discloses a method of binding a plurality of sheets to form a book-like structure comprising providing an assembly of plural sheets, contacting a hot melt adhesive sheet to a spine surface of the assembly of plural sheets, melting the hot melt adhesive sheet at discrete points to soften the sheet which is considered to include raising a temperature of the hot melt adhesive above a glass transition temperature of the adhesive, and tack the hot melt adhesive sheet to the spine to prevent displacement of the hot melt adhesive sheet during subsequent processing steps, and then bonding the hot melt adhesive sheet to the spine using a clamping apparatus including an active cooling means to form the book-like structure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Yamanaka as modified by Boss, Clark, and Capriz or Colbert a step of tacking the backed hot melt adhesive sheet in discrete points to the spine of the assembly of plural sheets to prevent the backed hot melt adhesive sheet from displacing during clamping with the first and second bonding surfaces as shown by Kuramoto.

(10) Response to Argument

Response to arguments of the rejections over Morishige:

> Appellant argues, "Instead, the Examiner apparently retracts earlier admissions of record, and now substitutes a baseless assertion on page 3 of the final Office Action that "Morishige teaches the hot melt adhesive of the backed hot melt adhesive sheet is heated and melted considered heated to a temperature above the glass transition tempberature of the hot melt adhesive and then actively cooled to solidify the hot melt adhesive considered actively withdrawing heat from the backed hot melt adhesive sheet to bring a temperature of a hot melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the adhesive." The Examiner then sets forth a circular reasoning of the same proposition with no substantiation.".

It is not clear what is meant by "the Examiner apparently retracts earlier admissions of record". The rejection over Morishige set forth in the Final Rejection mailed 6/18/08 regarding the limitation of "actively withdrawing heat from the backed hot melt adhesive sheet using a heat sink based on an active cooling device, which is one of a Peltier device, a device having an internal circulating medium, and a device based on a Joule-Thomson effect, to bring a temperature of a hot melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the hot melt adhesive" is the same as that set forth in the Non-Final Rejection mailed 12/14/07. In any event the reasoning to support the assertions is as follows. Morishige teaches the adhesive is melted (Column 6, lines 29-32) such that because one of ordinary skill in the art recognizes that the glass transition temperature is below the melting temperature the adhesive taught by Morishige is considered at a temperature above the glass transition temperature of the adhesive. Morishige then teaches the melted adhesive is solidified by cooling (Column 6, lines 46-52) such that because one of ordinary skill in the art recognizes that the glass transition temperature is the temperature at which the adhesive becomes soft the solidified adhesive taught by Morishige is

considered cooled to below the glass transition temperature of the adhesive. In the event it was shown that cooling the adhesive to solidification does not necessarily cool the adhesive below the glass transition temperature an obvious statement of cooling the adhesive to below the glass transition temperature was additionally set forth.

> Apellants further argue, "Likewise, towards the bottom of page 3 of the final Office Action, the Examiner makes further unsubstantiated assertion that "Regarding the limitatoin of actively withdrawing heat using a heat sink based on an active cooling device, which is one of a Peltier device, a device having an internal circulating medium, and a device based on a Joule Thomson effect, Morishige teaches the hot melt adhesive is cooled via an unshown cooling means it being noted providing a heat sink for dissipating heat from a heated surface is well known ...." Again, the Examiner has not met his burden in his assertions, and Appellants submit that the Morishige et al. patent would not have taught or suggested actively withdrawing heat from the backed hot melt adhesive sheet using a heat sink based on an active cooling device, which is one of a Peltier device, a device having an internal circulating medium, and a device based on a Joule Thomson effect, to bring a temperature of a hot melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the hot melt adhesive, wherein at least the translatable first contacting surface has an angled leading edge adapted to contact a protruding end portion of the backed hot melt adhesive sheet at an offset angle, as recited in claim 26.".

The assertion that Morishige teaches the hot melt adhesive is cooled via an unshown cooling means is supported at Column 6, lines 46-52 of Morishige. The assertion that providing a heat sink for dissipating heat from a heated surface is well known including during bookbinding is evidenced by Boss, it being noted that Capriz and Colbert could also be considered evidence of dissipating heat from a heat surface using a heat sink.

> Appellant further argues, "The Examiner applied the Boss publication for its disclosure of a heat sink 30, which is unrelated to Appellant's claimed active heat sink. Rather, the "heat sink" as relied upon by the Examiner is based on a large "thermal mass" of a solid block 30 as illustrated in Fig. 2. The Boss publication, considered individually or in the combination as suggested by the Examiner, would not have taught or suggested actively withdrawing heat from the backed hot melt adhesive sheet using a heat sink based on an active cooling device, which is one of a Peltier device, a device having an internal circulating medium, and a device based on a Joule-Thomson effect, to bring a

> temperature of a hot melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the hot melt adhesive, wherein at least the translatable first contacting surface has an angled leading edge adapted to contact a protruding end portion of the backed hot melt adhesive sheet at an offset angle, as recited in claim 26.".

Boss teaches a method of binding a plurality of sheets to form a book-like structure similar to Morishige including providing an assembly of plural sheets including an adhesive portion along the spine and planar surface of the assembly, providing a clamping jaw comprising an actively cooled heat sink attached to, i.e. connected to, and in thermal communication with a contacting surface, displacing the clamping jaw at a distance greater than the thickness of the assembly of plural sheets, translating the clamping jaw to apply pressure to the planar surface of the assembly of plural sheets, applying heat to the clamping body to melt the adhesive, and then withdrawing heat from the assembly of plural sheets and the clamping body through the actively cooled heat sink to form the book-like structure. Boss teaches including the actively cooled heat sink within the clamping jaw allows rapid heating and cooling of the assembly of plural sheets and clamping body. The actively cooled heat sink taught by Boss is air cooled by natural or forced convection wherein Capriz and Colbert both evidence that providing the heat sink with an internal circulating medium for cooling is more efficient than air cooling the heat sink by natural or forced convection.

> Appellant further argues, "The Capriz et al. publication and the Colbert et al. patent do not cure the deficiencies of the Morishige et al. patent and the Boss publication. Rather, as tersely relied upon by the Examiner at the top of page 4 of the final Office Action, the Caprize et al. publication discloses a heat sink (paragraph [0004]), particularly a liquid-cooled heat sink (paragraph [0005]); and the Colbert patent discloses a heat sink 102 attached to a heat pipe 101, described as a liquid cooled heat sink (col. 5, lines 10-19). However, they merely stand for the liquid-cooled heat sink as described, and do not relate specifically to Appellant's claimed use of a heat sink based on an active cooling device, which is one of a Peltier device, a device having an internal circulating medium, and a device based on a Joule-Thomson effect, to bring a temperature of a hot

melt adhesive of the backed hot melt adhesive sheet from above a glass transition temperature of the hot melt adhesive to below the glass transition temperature of the hot melt adhesive, as recited in claim 26.".

Capriz and Colbert are relied upon as evidence that providing the heat sink with an internal circulating medium for cooling is more efficient than air cooling the heat sink by natural or forced convection.

Response to arguments of the rejections over Yamanaka:

The arguments are substantially the same as those to Morishige wherein the response to arguments set forth above for Morishige applies to the same arguments set forth by Appellants regarding Yamanaka.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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